

University of Nebraska - Lincoln

## DigitalCommons@University of Nebraska - Lincoln

---

Nebraska Tractor Tests

Tractor Test and Power Museum, The Lester F. Larsen

---

2013

### Nebraska Summary: S953 New Holland T5.105

Nebraska Tractor Test Laboratory

*University of Nebraska-Lincoln*, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

Follow this and additional works at: <https://digitalcommons.unl.edu/tractormuseumlit>

 Part of the [Energy Systems Commons](#), [History of Science, Technology, and Medicine Commons](#), [Other Mechanical Engineering Commons](#), [Physical Sciences and Mathematics Commons](#), [Science and Mathematics Education Commons](#), and the [United States History Commons](#)

---

Laboratory, Nebraska Tractor Test, "Nebraska Summary: S953 New Holland T5.105" (2013). *Nebraska Tractor Tests*. 2941.

<https://digitalcommons.unl.edu/tractormuseumlit/2941>

This Article is brought to you for free and open access by the Tractor Test and Power Museum, The Lester F. Larsen at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Nebraska Tractor Tests by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# SUMMARY OF OECD TEST 2805A–NEBRASKA SUMMARY 953

## NEW HOLLAND T5.105 DIESEL

### 12 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal./hr (l/h)	lb./hp.hr (kg/kW.h)	Hp./hr/gal (kW.h/l)	Mean Atmospheric Conditions
<b>MAXIMUM POWER AND FUEL CONSUMPTION</b>					
<b>Rated Engine Speed—(PTO speed—1194 rpm)</b>					
96.6 (72.0)	2300	6.14 (23.26)	0.443 (0.270)	15.73 (3.10)	
<b>Standard Power Take-off Speed (1000 rpm)</b>					
99.3 (74.0)	1926	5.78 (21.87)	0.406 (0.247)	17.18 (3.39)	
<b>Maximum Power - (1 hour)</b>					
99.3 (74.0)	1926	5.78 (21.87)	0.406 (0.247)	17.18 (3.39)	

#### VARYING POWER AND FUEL CONSUMPTION

96.6 (72.0)	2300	6.14 (23.26)	0.443 (0.270)	15.73 (3.10)	Air temperature
82.9 (61.8)	2323	5.36 (20.28)	0.450 (0.274)	15.47 (3.05)	80°F (27°C)
62.6 (46.7)	2346	4.45 (16.85)	0.496 (0.301)	14.06 (2.77)	Relative humidity
42.4 (31.6)	2371	3.38 (12.78)	0.556 (0.338)	12.54 (2.47)	51%
21.5 (16.0)	2392	2.34 (8.85)	0.759 (0.462)	9.18 (1.81)	Barometer
--	2413	1.70 (6.43)	--	--	29.2" Hg (99.0 kPa)

Maximum Torque - 308.3 lb.-ft. (418.0 Nm) at 1500 rpm

Maximum Torque Rise - 39.7%

Torque rise at 1800 engine rpm - 30%

Power increase at 1926 rpm - 2.8%

#### DRAWBAR PERFORMANCE

(Unballasted - Front Drive Engaged)

#### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb./hp.hr (kg/kW.h)	Hp./hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
<b>Maximum Power—6th (2M) Gear</b>									
70.3 (52.4)	5575 (24.8)	4.73 (7.60)	2300	3.5	0.612 (0.372)	11.38 (2.24)	178 (81)	93 (34)	30.0 (101.6)
<b>75% of Pull at Maximum Power—6th (2M) Gear</b>									
53.9 (40.2)	4160 (18.5)	4.86 (7.82)	2337	2.3	0.685 (0.416)	10.20 (2.01)	178 (81)	93 (34)	30.0 (101.6)
<b>50% of Pull at Maximum Power—6th (2M) Gear</b>									
36.9 (27.5)	2790 (12.4)	4.96 (7.99)	2362	1.3	0.848 (0.516)	8.21 (1.62)	174 (79)	93 (34)	30.0 (101.6)
<b>75% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
53.9 (40.2)	4160 (18.5)	4.86 (7.82)	1579	2.3	0.605 (0.368)	11.52 (2.27)	176 (80)	93 (34)	30.0 (101.6)
<b>50% of Pull at Reduced Engine Speed—7th (3M) Gear</b>									
36.9 (27.5)	2790 (12.4)	4.96 (7.98)	1593	1.3	0.635 (0.386)	10.98 (2.16)	171 (77)	93 (34)	29.9 (101.1)

**Location of tests:** Istituto per le Macchine Agricole e Movimento Terra 73, Strada delle Cacce 10135 Torino Italy

**Dates of tests:** June to August, 2013.

**Manufacturer:** CNH Europe Holding S.A. 24, Boulevard Royal L-2449 Luxembourg

**FUEL and OIL:** Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F (15°/15°C)** 0.837 **Fuel weight** 6.97 lbs/gal (0.835 kg/l) **Oil SAE** 15W40 **API service classification** CJ-4 **Transmission and hydraulic lubricant** NH 410B fluid **Front axle lubricant** NH 410B fluid

**ENGINE:** Make FPT Industrial Diesel **Type** four cylinder vertical with turbocharger and air to air intercooler **Serial No.** 000134136 **Crankshaft** lengthwise **Rated engine speed** 2300 **Bore and stroke** 3.898" x 4.331" (99.0 mm x 110.0 mm) **Compression ratio** 17.0 to 1 **Displacement** 207 cu in (3387 ml) **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Exhaust** regenerative particulate filter integrated within an underhood muffler with vertical outlet **Cooling medium temperature control** thermostat and variable speed fan

**CHASSIS:** **Type** front wheel assist **Serial No.** ZDJR04866 **Tread width** rear 56.5" (1434 mm) to 84.2" (2138 mm) front 56.7" (1441 mm) to 84.8" (2153 mm) **Wheelbase** 92.5" (2350 mm) **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph (km/h)** first 1.38 (2.22) second 2.06 (3.31) third 3.04 (4.89) fourth 3.23 (5.19) fifth 4.46 (7.18) sixth 4.80 (7.72) seventh 7.10 (11.43) eighth 7.59 (12.22) ninth 10.43 (16.78) tenth 11.30 (18.18) eleventh 16.72 (26.91) twelfth 24.54 (39.50) reverse 1.36 (2.19), 2.02 (3.25), 2.99 (4.81), 3.17 (5.10), 4.38 (7.06), 4.72 (7.59), 6.98 (11.24), 7.46 (12.01), 10.25 (16.50), 11.11 (17.88), 16.44 (26.46), 24.13 (38.83) **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1942 engine rpm or 1000 rpm at 1926 engine rpm **Unladen tractor mass** 9305 lb (4220 kg)

## DRAWBAR PERFORMANCE

### (Unballasted - Front Drive Engaged) MAXIMUM POWER IN SELECTED GEARS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp. °F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
2nd(2L) Gear									
41.0 (30.6)	8250 (36.7)	1.86 (3.00)	2354	15.0	0.791 (0.481)	8.82 (1.74)	172 (78)	88 (31)	30.0 (101.6)
3rd(3L) Gear									
60.3 (45.0)	7980 (35.5)	2.83 (4.56)	2327	11.9	0.616 (0.374)	11.32 (2.23)	174 (79)	90 (32)	30.0 (101.6)
4th(1M) Gear									
62.9 (46.9)	7915 (35.2)	2.98 (4.80)	2322	11.4	0.599 (0.364)	11.62 (2.29)	176 (80)	91 (33)	30.0 (101.6)
5th(4L) Gear									
74.3 (55.4)	7150 (31.8)	3.90 (6.27)	2168	9.2	0.549 (0.334)	12.69 (2.50)	176 (80)	90 (32)	30.0 (101.6)
6th(2M) Gear									
74.7 (55.7)	7105 (31.6)	3.94 (6.35)	1980	6.5	0.554 (0.337)	12.59 (2.48)	174 (79)	91 (33)	30.0 (101.6)
7th(3M) Gear									
74.4 (55.5)	4675 (20.8)	5.97 (9.61)	1946	2.6	0.545 (0.331)	12.79 (2.52)	178 (81)	88 (31)	30.0 (101.6)
8th(1H) Gear									
74.8 (55.8)	4425 (19.7)	6.34 (10.20)	1929	2.5	0.539 (0.328)	12.94 (2.55)	178 (81)	91 (33)	30.0 (101.6)
9th(4M) Gear									
70.5 (52.6)	3010 (13.4)	8.79 (14.14)	1926	1.4	0.570 (0.346)	12.23 (2.41)	178 (81)	91 (33)	30.0 (101.6)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE:** The performance results on this report were obtained from tests carried out on the Case IH Farmall 105U Diesel.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD test procedures. This tractor did not meet the manufacturer's remote hydraulic flow claim of 17.2 GPM (65 lpm). The manufacturer's three point hitch lift claim of 11949 lbs (5420 kg) with optional lift rams was not verified. The manufacturer's remote hydraulic flow claim of 22.2 GPM (84 l/min) with optional pump was not verified. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true summary of data from OECD Report No. **2805A**, Nebraska Summary 953, July 11, 2014.

Roger M. Hoy  
Director

M.F. Kocher  
S. Pitla  
P.J. Jasa  
Board of Tractor Test Engineers

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 6th (2M) gear	76.9	76.9
Bystander in 12th (4H) gear	--	84.2

## TIRES, BALLAST AND WEIGHT

**Rear Tires** -No., size, ply & psi (kPa)

Ballast - Liquid (total)

- Cast Iron (total)

**Front Tires** -No., size, ply & psi (kPa)

Ballast - Liquid (total)

- Cast Iron (total)

**Height of Drawbar**

**Static Weight with operator** - Rear

- Front

- Total

### With Ballast

Two 480/85R34;\*\*,12(80)

None

660 lb (300 kg)

Two 380/85R24;\*\*,12(80)

None

1105 lb (500 kg)

18.9 in (480 mm)

6130 lb (2780 kg)

5105 lb (2315 kg)

11235 lb (5095 kg)

### Without Ballast

Two 480/85R34;\*\*,12(80)

None

None

Two 380/85R24;\*\*,12(80)

None

None

19.1 in (485 mm)

5665 lb (2570 kg)

3805 lb (1725 kg)

9470 lb (4295 kg)

**DRAWBAR PERFORMANCE**  
**(Ballasted - Front Drive Engaged)**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Consumption Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(3L) Gear									
67.5 (50.3)	9645 (42.9)	2.62 (4.22)	2250	15.4	0.627 (0.382)	11.12 (2.19)	176 (80)	88 (31)	30.0 (101.5)
4th(1M) Gear									
70.3 (52.4)	9060 (40.3)	2.91 (4.68)	2218	9.1	0.602 (0.366)	11.57 (2.28)	178 (81)	90 (32)	30.0 (101.5)
5th(4L) Gear									
75.0 (55.9)	7735 (34.4)	3.64 (5.85)	1927	4.7	0.532 (0.324)	13.10 (2.58)	180 (82)	88 (31)	30.0 (101.5)
6th(2M) Gear									
75.9 (56.6)	7260 (32.3)	3.92 (6.31)	1923	4.1	0.528 (0.321)	13.20 (2.60)	174 (79)	90 (32)	30.0 (101.5)
7th(3M) Gear									
74.6 (55.6)	4700 (20.9)	5.95 (9.57)	1927	1.8	0.539 (0.328)	12.94 (2.55)	181 (83)	90 (32)	30.0 (101.5)
8th(1H) Gear									
74.8 (55.8)	4405 (19.6)	6.36 (10.24)	1926	1.7	0.540 (0.328)	12.90 (2.54)	178 (81)	86 (30)	30.0 (101.5)
9th(4M) Gear									
70.1 (52.3)	2990 (13.3)	8.80 (14.16)	1924	1.2	0.572 (0.348)	12.18 (2.40)	176 (80)	90 (32)	30.0 (101.5)

## HYDRAULIC PERFORMANCE

CATEGORY: II

Quick Attach: None

OECD Static test

Maximum force exerted through whole range: 6520 lbs (29.0 kN)

i) Sustained pressure of the open relief valve: 2845 psi (196 bar)

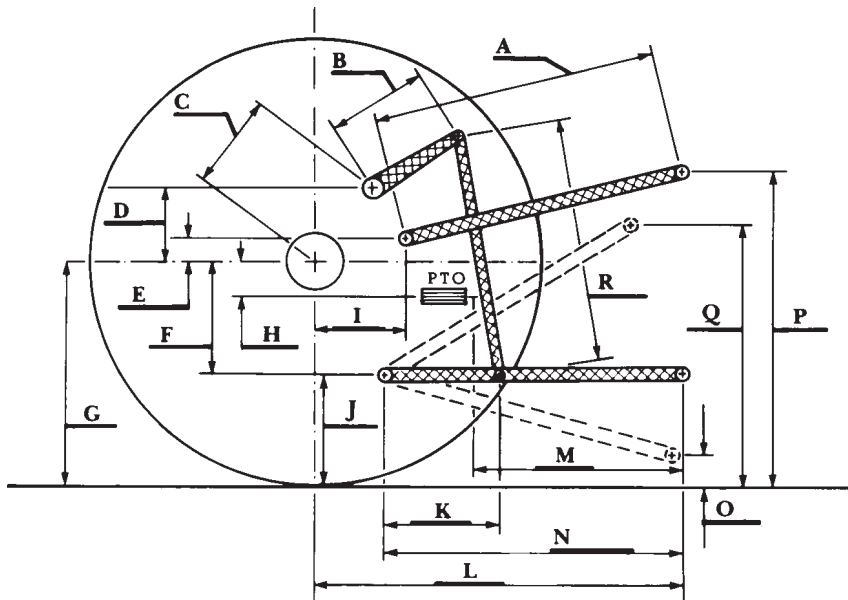
ii) Pump delivery rate at minimum pressure: 17.0 GPM (64.5 l/min)

iii) Pump delivery rate at maximum

hydraulic power: 13.9 GPM (52.7 l/min)

Delivery pressure: 2465 psi (170 bar)

Power: 20.0 HP (14.9 kW)



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	mm
A	26.7	677
B	10.0	255
C	13.9	352
D	11.7	296
E	10.1	257
F	8.3	210
G	31.5	800
H	1.6	41
I	16.7	424
J	23.2	590
K	17.9	455
L	42.6	1083
M	22.1	562
N	37.5	953
O	7.9	200
P	47.2	1200
Q	36.1	918
R	25.4	645